MODULE V LONG-TERM INCINERATION

V.A. GENERAL CONDITIONS FOR INCINERATORS AND FURNACES

V.A.1. CONSTRUCTION AND MAINTENANCE

V.A.1.a. The Permittee shall maintain each incinerator and furnace in accordance with the design plans and specifications. Design plans and specifications shall be provided to representatives of the Executive Secretary upon request.

V.A.1.b. Modification to the design plans and specifications for an incinerator or a furnace shall be allowed only in accordance with Condition II.A.2.

V.A.1.c. The Permittee shall install and test all process monitoring and control instrumentation for each incinerator and furnace in accordance with the design drawings in Attachment 11, and in accordance with the performance specifications and maintenance procedures contained in Tables 6-A-1 (LIC 1) and 6-A-2 (LIC 2); Table 6-B (MPF); and Table 6-C (DFS) in Attachment 6 (Instrument Calibration Plan and Incinerator Waste Feed Interlock Function Test).

V.A.1.d. Reserved.

V.A.1.e. The Permittee shall maintain each incinerator or furnace such that when operated, in accordance with the operating requirements specified in this Permit, each incinerator or furnace shall meet the applicable performance standards specified in Section V.A.2.

V.A.1.f. The Permittee shall maintain and operate a minimum of one monitor for each oxygen (O_2) and carbon monoxide (CO) continuous emission monitor specified in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables). If either the CO or O_2 monitors fail, and no certified backup CEMS is on line, for continuous monitoring then feed to the incinerator or furnace shall be stopped.

V.A.1.f.i. For the MPF and DFS only, a back up O_2 and CO monitor shall be on line in case the primary monitor fails or malfunctions during waste feed. The Permittee shall use the backup monitor until the waste has exited the furnace or furnace system. The monitor that failed or malfunctioned shall be replaced or repaired prior to resuming feed to the furnace or furnace system.

V.A.1.g. The Permittee shall maintain and operate Depot Area Air Monitoring System (DAAMS) tubes and Automatic Continuous Air Monitoring System (ACAMS) monitor on each incinerator or furnace exhaust duct and DAAMS tubes and staggered ACAMS monitors on the common stack as specified in Attachments 19 (Instrumentation and Waste Feed Cut-off Tables) and 22 (Agent Monitoring Plan).

V.A.1.h. Major maintenance changes shall require recalibration of the Continuous Emission Monitoring Systems (CEMS) in accordance with the most stringent requirements of 40 CFR Part 266, Appendix IX, 40CFR Part 60, Appendix B, Performance Specification Tests and Attachment 20 (CEMS Monitoring Plans), Section 8.a.7. A certified monitor may receive minor maintenance and repairs and still remain certified in accordance with V.A.1.h.i and 40 CFR 266, Appendix IX.

V.A.1.h.i. The following table categorizes the CEMS repairs and maintenance, and the re-certification step, if required, prior to placing the instrument on line for monitoring:

Maintenance operation	Repairs/Maintenance Included	Operational Validation Steps Required
Modification of Critical Components	•Changes to probe construction material •Changes of detection method •Addition or deletion of sample conditioning components	•Relative Accuracy Test Audit (RATA). •7-Day Calibration Drift Test. •Response Time Test. •Calibration Error Test. Note: This is a full CEMS re-certification.
Major	•Detector change or repair. •Circuit card change or repair. •Power supply change or repair.	•7-Day Calibration Drift Test. •Response Time Test. •Calibration Error Test.
Minor (Maintenance/Repairs)	•All other maintenance and repair activities not addressed above. These include, but are not limited to: •Analyzer adjustment or optimization. •Cell replacement. •Pump repair/replacement. •Filter replacement. •Sample conditioner repair or replacement. •Probe replacement. •Tubing replacement.	•Re-calibration of instrument. •Calibration Error Test. •Response Time Test Note: Re-certification in accordance with 40 CFR 266, Appendix IX is not required for monitors receiving Minor maintenance or repairs. The monitor shall remain certified.

V.A.1.H.ii. The following table categorizes the API-300EM CO analyzer repairs and maintenance, and the recertification step, if required, prior to placing the instrument on line for monitoring:

Maintenance Operation	Repairs/Maintenance Included	Steps Required to Re-Certify for Operations
Modification of Critical Components	• Replacement or update software • Replacement of software chip • Replacement of CPU	Full CEMS analyzer recertification including: • Relative Accuracy Test Audit (RATA) • 7-Day Calibration Drift • Response Time Test • Calibration Error Test
Major	• Change out of detector • Synchronous/Demodulation board replacement • Source • GCF wheel • GDF wheel motor	• Calibration Error Test, Calibration • Calibration Error Test, Calibration, Dark Calibration • Calibration • 7 Day Calibration Drift
Minor (Maintenance/Repairs)	• Front panel filter • Any electronic board other than Synchronous/ Demodulation	• Calibration • Calibration

V.A.1.i. For the monitors specified in V.A.1.f., the replacement monitors, shall be certified in accordance with Condition V.A.4.f.

V.A.1.j. Replacement ACAMS shall be available for the monitors specified in V.A.1.g. These monitors shall be certified in accordance with Attachment 3 (Sampling, Analytical, and QA/QC Procedures).

V.A.1.k. Replacement of the oxygen (O_2) and carbon monoxide (CO) monitors specified in V.A.1.f. shall be in accordance with the following:

V.A.1.k.i. The replacement monitor shall be calibrated in accordance with R315-50-16 [40 CFR Part 266, Appendix IX, 2.1.6.2. for Response Time, and 2.1.6.3 for Calibration Error] immediately after installation.

V.A.1.k.ii. The replacement monitor shall be calibrated when installed and checked thereafter for Calibration Drift.

V.A.1.k.iii. The replacement monitoring system shall be calibrated and on-line before the calibration of the first monitor has expired. If this cannot be accomplished, feed to the incinerator or furnace shall be discontinued.

V.A.1.k.iv. Both monitors for one location may not be replaced within one 24-hour period without approval from the Executive Secretary.

V.A.1.l. A report specifying the following information shall be submitted to the Executive Secretary within 14 calendar days of replacement of any oxygen (O_2) and carbon monoxide (CO) monitor specified in Condition V.A.1.f.

V.A.1.l.i. The calibration data, both raw data and Process Data Acquisition and Recording System (PDARS), in accordance with R315-50-16 [40 CFR Part 266, Appendix IX];

V.A.1.l.ii. Serial numbers, types, and ranges of both failed and replacement monitors;

V.A.1.l.iii. Date and time the monitor failed;

V.A.1.l.iv. Maintenance to be performed; and

V.A.1.l.v. The identity of the incinerator or furnace.

V.A.1.m. Replacement monitor information in Condition V.A.1.l. shall also be included in the annual report specified in Condition I.AA.

V.A.2. PERFORMANCE STANDARDS

V.A.2.a. The incinerators and furnaces must achieve a Destruction and Removal Efficiency (DRE) listed in the following table for the chemical agent trial burn principal organic hazardous constituents (POHCs), the chemical agents GB, VX, and Mustard (H/HD/HT), and propellant, explosives, and pyrotechnics (PEP). The DRE shall be calculated by the method specified in R315-14-7.

Incinerator / Furnace (POHC)	Minimum POHC DRE
Each LIC (Agent)	99.9999%
MPF (Agent)	99.99%
DFS (Agent)	99.99%
DFS (PEP)	99.99%

V.A.2.b. The particulate matter emission from the common stack, corrected to 7% oxygen in accordance with the formula given below, shall not exceed 34.3 milligrams per dry standard cubic meter.

$$P_c = P_m \times 14/(21 - Y)$$

Where:

P_c = corrected concentration of particulate matter
P_m = measured concentration of particulate matter ppm (dry volume)
Y = measured O_2 in the stack gas

V.A.2.c. The hydrogen chloride emission from the common stack shall be controlled so that the rate of emission shall not exceed the larger of either four pounds per hour or one percent of the total hydrogen chloride in the combustion gas streams from each incinerator and furnace prior to entering any pollution control equipment.

V.A.2.d. Toxic metals emissions shall be controlled by limiting the agent and agent contaminated waste feed rates to each incinerator and furnace.

V.A.2.e. The Permittee shall control emissions of products of incomplete combustion from each incinerator and furnace such that the carbon monoxide (CO) level in each exhaust duct,

corrected to 7% oxygen in accordance with the formula given below, shall not exceed 100 parts per million (ppm), dry volume, over a one-hour rolling average.

$$CO_c = CO_m \times (21 - 7)/(21 - O_m)$$

Where:

CO_c = corrected CO ppm (dry volume)
CO_m = measured CO ppm (dry volume)
O_m = measured % O_2 (dry volume)

V.A.2.f. Compliance with the operating conditions specified in Conditions V.B.2., V.C.2., and V.D.2. shall be regarded as compliance with the required performance standards identified in Conditions V.A.2.a. through V.A.2.e. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in V.B.2., V.C.2., or V.D.2. is not sufficient to ensure compliance with the performance standards specified in Conditions V.A.2.a. through V.A.2.e., the Permit may be modified, revoked, or reissued, pursuant to R315-3-4.

V.A.3. INSPECTION REQUIREMENTS

V.A.3.a. The Permittee shall inspect each incinerator and furnace in accordance with the inspection requirements of Attachments 5 (Inspection Plan) and 6 (Instrument Calibration Plan and Incinerator Waste Feed Interlock Function Test).

V.A.3.b. The inspection data for the incinerators and furnaces shall be recorded. The records shall be placed in the Operating Record for each incinerator and furnace in accordance with Condition II.I.

V.A.3.c. The following requirements apply when non-routine maintenance or repairs are performed on the Quench Tower, Venturi Scrubber, Scrubber Tower, or Demister. Ancillary equipment is excluded from these requirements.

V.A.3.c.1 The Permittee shall notify the Executive Secretary prior to the non-routine work.

V.A.3.c.2 All work shall be performed in accordance with TOCDF work order procedure (PRP-MG-015), which requires all work to be done in accordance with applicable specifications.

V.A.3.c.3 Quality inspection and verification shall be conducted in accordance with TOCDF quality procedure (PRP-QA-006) and the affected component shall not be put in service until all inspections are complete.

V.A.3.c.4 All work order documentation and manufacturing specifications shall be maintained in TOCDF Document Control for archiving during the life of the facility.

V.A.4. MONITORING REQUIREMENTS

V.A.4.a. The Permittee shall maintain, calibrate, and operate process monitoring, control, and recording equipment as specified in Attachments 3 (Sampling, Analytical, and QA/QC Procedures), 6 (Instrument Calibration Plan and Incinerator Waste Feed Interlock Function Test), 19 (Instrumentation and Waste Feed Cut-off Tables), 20 (Continuous Emission Monitoring System Plans), and 22 (Agent Monitoring Plan); Condition V.A.1.f. and V.A.1.g.; and Conditions V.E.6 through V.E.10 while incinerating hazardous waste.

V.A.4.a.i. The Resource Conservation and Recovery Act (RCRA) monitors shall monitor as described in Conditions V.A.1.f. and V.A.1.g. The following table lists the levels,when monitoring in accordance with Attachment 22, where an ACAMS alarms and causes a waste feed cut-off (common stack or duct ACAMS or causes a staged shutdown (HVAC ACAMS) in accordance with Module X (Air Emission Standards for Equipment Leaks, Tanks, Containers, and the HVAC).

MONITORING STATION	MONITORING LEVEL	DAAMS Confirmation
Common Stack 701AG, 701BG, 701CG	0.2 SEL[1]	701DG, 701EG
Common Stack 706AV, 706BV, 706CV	0.2 SEL[1]	706DV, 706EV
Common Stack 707AH, 707BH, 707CH	0.2 SEL[1]	707DH, 707EH
DFS Duct 702AH, 702BH	0.2 SEL[1]	Yes
MPF Duct 703C, 703D	0.2 SEL[1] (GB) 0.5 SEL[1] (VX)	Yes
MPF Duct 703AH, 703BH	0.2 SEL[1]	Yes
LIC 1 Duct 704AH, BH	0.2 SEL[1]	Yes
LIC 2 Duct 705AH, BH	0.2 SEL[1]	Yes
HVAC Stack 601CH, 601DH	0.5 VSL[2]	Yes
HVAC Stack 601AV, 601BV for VX 601EG, 601FG for GB	0.5 VSL[2]	Yes

Notes: [1] SEL(mg/m^3): GB=0.0003, VX=0.0003, HD= 0.03
[2] VSL(mg/m^3): GB= 0.0001, VX=0.00001, HD=0.003.

V.A.4.a.ii. A CEMS monitor may be taken off-line for calibration and minor maintenance as specified in Condition V.A.1.h.

V.A.4.a.iii. Data from the CEMS shall be recorded in the operating record and PDARS.

V.A.4.a.iv. Data from the O_2 and CO CEMS and staggered, common stack ACAMS monitors shall be used for reporting requirements.

V.A.4.a.v. All RCRA monitors shall be connected to the waste feed cut-off.

V.A.4.b. Monitoring of oxygen (O_2), carbon monoxide (CO), and agent shall be provided at all times during waste feed to a furnace or incinerator. If an interruption in monitoring (CO, O_2 or agent) occurs, feed to that furnace shall be discontinued except as allowed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables). If the duct is not monitored by an ACAMS, then the DAAMS tubes shall be analyzed for that time period the ACAMS was off-line. Monitoring shall resume in accordance with Attachment 22 (Agent Monitoring Plan).

V.A.4.c. Hazardous wastes shall not be fed to an individual incinerator or furnace if any one of the monitoring instruments listed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables) pertaining to that incinerator or furnace fails to operate properly.

V.A.4.d. Upon receipt of a written request from the Executive Secretary, the Permittee shall perform sampling and analysis of the waste and exhaust emissions to verify that the operating requirements established in the Permit achieve the performance standards delineated under Condition V.A.2.

V.A.4.e. All monitoring, recording, maintenance, calibration, and test data shall be recorded and the records shall be placed in the operating record for each furnace in accordance with Condition II.I.

V.A.4.f. The oxygen (O_2) and carbon monoxide (CO) monitors specified in Condition V.A.1.f. shall be certified in accordance with R315-50-16 [40 CFR Part 266, Appendix IX and 40CFR Part 60, Appendix B, using the most stringent requirements.

V.A.4.f.i. Certification or recertification must be accepted by the Executive Secretary.

V.A.4.f.i.a. Interim approval of certification or recertification test results may be granted by the Executive Secretary, based upon a review of preliminary data and observations made during the certification testing, to allow operation of the monitor for compliance prior to submission of the final certification or recertification report.

V.A.4.f.ii. A certified monitor may only receive minor modifications and still remain certified.

V.A.4.f.iii. Condition V.A.1.h.i classifies CEMS repairs and maintenance as major changes or minor changes.

V.A.4.f.iv. Written approval from the Executive Secretary shall be required for downgrading a major change to a minor change.

V.A.4.f.v. Each monitor shall be recertified annually, in accordance with R315-50-16 [40 CFR266, Appendix IX] and 40CFR Part 60, Appendix B using the most stringent requirements. This recertification shall be initiated within or before the calendar quarter of the certification anniversary date. The current certification shall remain in effect until a determination is made on the recertification.

V.A.4.f.vi. The certification date shall be the first day of certification testing.

V.A.4.g. Pursuant to Attachment 22 (Agent Monitoring Plan), the Permittee shall monitor and control emissions of chemical agents from each incinerator, furnace, and the common stack. The emission level measured by each monitoring system shall not exceed the following concentrations:

	Chemical Agent Concentration (mg/m^3)		
	GB	H/HD/HT	VX
Maximum Stack Emission:	0.0003	0.03	0.0003

V.A.5. CLOSURE

V.A.5.a. At closure, the Permittee shall follow the procedures in Attachment 10 (Closure Plan).

V.A.6. RECORDKEEPING

V.A.6.a. The Permittee shall record and maintain, in the operating record for each incinerator and furnace, all monitoring and inspection data compiled under the requirements of this Permit, in accordance with Condition II.I.

V.A.6.b. The Permittee shall record in the operating record the date, time, and duration of all automatic waste feed cut-offs, including the triggering parameters, reason for the deviation that resulted in a waste feed cut-off, and corrective measures taken to prevent recurrence of the incident. The Permittee shall also record all incidents of the automatic waste feed cut-off function failures, including the corrective measures taken to alleviate the condition that caused the failure.

V.B. LIQUID INCINERATORS (LICs)

All numeric values included in any of the Conditions under V.B., which are marked with an asterisk (*), (except numeric values for agent GB, which have previously been approved) are tentative and may be modified by permit modification after the results of each trial burn have been evaluated by the Executive Secretary in accordance with R315-8-15.5(c). The Executive Secretary reserves the right to replace the values, which are marked with an asterisk as necessary to be protective of human health and the environment.

V.B.1. LIMITATION ON WASTE FEED

V.B.1.a. Except during the short-term periods specified in Module VI for shakedown, trial burn, and post-trial burn, the Permittee shall incinerate only the following hazardous wastes in each LIC, in compliance with the operating requirements specified in Condition V.B.2. The heat input of the waste to the Primary Combustion Chamber (PCC) of each LIC shall not exceed 8,400,000 BTU/hr (based on agent GB feed rate.)

DESCRIPTION OF HAZARDOUS WASTES	**LIC 1 & LIC 2 COMBUSTION CHAMBER**	**MAXIMUM FEED RATE lbs/hour**
Chemical Agents (P999, D002, D003, D004, D006, D007, D008, D009, and D010)		
GB	Primary	833
VX	Primary	580*
Mustard (H/HD/HT)	Primary	1,160*
Miscellaneous Agent Contaminated Liquid Wastes (P999, F999, D001, D002, D003, D004, D006, D007, D008, D009, D010, F002, and F005) as identified in Attachment 2 (Waste Analysis Plan), Section 2.2.1.15		
GB	Primary	833
VX	Primary	580*
Mustard (H/HD/HT)	Primary	1,160*
Spent Decontamination Solutions (F999, D001, D002, D003, D004, D006, D007, D008, D009, D010, D019, D022, D028) as identified in Attachment 2 (Waste Analysis Plan), Section 2.2.2.22.		
GB	Primary/Secondary	1,790

VX	Primary/Secondary	1,790*
Mustard (H/HD/HT)	Primary/Secondary	1,790*

V.B.1.a.i. Only one chemical agent, or waste containing one chemical agent, shall be fed to the primary combustion chamber of the LIC at any given time.

V.B.1.a.ii. The spent decontamination solution or the miscellaneous agent contaminated wastes may be burned either in the primary combustion chamber or secondary combustion chamber but not at the same time. If these wastes are burned in the secondary combustion chamber, then only agent may be fed to the primary combustion chamber at the same time.

V.B.1.b. The Permittee shall not incinerate any chemical agent, or any waste containing the chemical agent, for which treatment has not been successfully demonstrated through a trial burn in accordance with Module VI or by other means approved by the Executive Secretary.

V.B.1.c. The Permittee shall not incinerate any hazardous waste in the LICs that contains R315-50-10 organic hazardous constituents, which are more difficult to destroy than the material demonstrated in the surrogate trial burn.

V.B.1.d. The feed rate of chlorine to each LIC shall not exceed 445* pounds per hour, over a twelve-hour rolling average.

V.B.1.e. Non-hazardous waste simulant test materials may be fed to either the primary or secondary combustion chambers to verify operating performance at the start of an agent or munition campaign, following maintenance, or after an approved furnace system modification.

V.B.1.f. Only liquid, pumpable, waste with a maximum viscosity of 10 centipoise at 25° C shall be incinerated in the LIC.

V.B.1.g. The Permittee shall conduct sufficient analysis of all waste treated in the LICs to verify that the waste feed is within the physical and chemical composition limits specified, in accordance with the waste analysis requirements in Attachment 2 (Waste Analysis Plan) and Attachment 3 (Sampling, Analytical, and QA/QC Procedures).

V.B.1.h. Metals feed rates to each LIC shall not exceed the values specified in Table V.1 located at the end of this Module.

V.B.2. OPERATING CONDITIONS

V.B.2.a. All operating conditions shall be monitored in accordance with the Monitoring Requirements in V.A.4. The Permittee shall monitor emissions of chemical agent from each incinerator duct (LIC #1, LIC #2), and the common stack, as specified in Condition V.A.4. The waste feed(s) to the corresponding incinerator(s) shall be automatically cut off if any of the monitored operating conditions deviate from the values specified in Tables D-5-2A and D-5-2B in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

V.B.2.b. Primary combustion chamber exhaust gas temperature shall be maintained at or above 2,550*° F, over a one-hour rolling average, but shall not reach or exceed 2,850*° F.

V.B.2.c. Secondary combustion chamber exhaust gas temperature shall be maintained at or above 1,850*° F, over a one-hour rolling average, but shall not reach or exceed 2,200*° F.

V.B.2.d. Carbon monoxide in the exhaust blower exit gas, shall be corrected to 7% oxygen in accordance with the formula specified in Condition V.A.2.e., and shall be maintained below 100* ppm, dry volume, over a one-hour rolling average.

V.B.2.e. LIC exhaust gas flow rate or unit production rate (as measured by the V-Cone) shall not exceed 8613* standard cubic feet per minute, over a one-hour rolling average.

V.B.2.f. If the exterior shell temperature of the slag removal system reaches or exceeds 500*° F, all waste feed to the LIC system shall be stopped. Shell integrity shall be verified, and recorded in the operating record, before wastes are re-introduced into the furnace system.

V.B.2.g. Atomizing air pressure for the waste burner nozzles, for both chemical agent and decontamination solution shall be maintained at or above the following set points:

V.B.2.g.i. Primary Combustion Chamber, All Feed Rates (1-100%) - 60* psig.

V.B.2.g.i.a. The Permittee may disable the Automatic Waste Feed Cut-Off associated with Condition V.B.2.g.i. when the waste burner nozzle for the primary chamber is removed and agent feed to the LIC is isolated.

V.B.2.g.ii. Secondary Combustion Chamber, All Feed Rates (1-100%) - 60* psig.

V.B.2.h. Reserved.

V.B.2.i. The Permittee shall control fugitive emissions from the combustion zone of the LIC by maintaining the pressure in the primary combustion chamber below the furnace room pressure.

V.B.2.j. Quench tower exhaust gas temperature shall not exceed 225*° F.

V.B.2.k. Exhaust gas pressure drop across the venturi scrubber shall be maintained above 20* inches of water column over a one-hour rolling average.

V.B.2.l. Brine feed rate to the venturi scrubber shall be maintained above 100* gallons per minute over a one-hour rolling average and 40* psig.

V.B.2.m. Clean liquor feed rate to the scrubber tower shall be maintained above 400* gallons per minute and 25* psig, over a one-hour rolling average.

V.B.2.n. Quench Brine shall be maintained above a pH of 7.0*over a one-hour rolling average.

V.B.2.o. Scrubber liquid effluent shall not reach or exceed 1.15* specific gravity units, over a twelve hour rolling average.

V.B.2.p. Oxygen concentration in the exhaust blower exit gas, shall be maintained above 3%*, but shall not reach or exceed 15%* oxygen on a dry volume basis.

V.B.2.q. Reserved.

V.B.2.r. Reserved

V.B.2.s. The maximum nerve agent feed rate to the LIC primary combustion chamber shall not reach or exceed 593* pounds per a one-hour rolling average.

V.B.2.t. Reserved

V.B.2.u. Reserved.

V.B.2.v. The maximum spent decontamination solution feed rate to the LIC secondary combustion chamber shall not reach or exceed 1,790* pounds per a one-hour rolling average.

V.B.2.w. During cold start-ups of LIC1 or LIC2, the primary chamber waste feed nozzle shall not be installed and the waste feed control valve shall not be opened until the secondary combustion chamber is at 1,550*° F or higher as measured by thermocouples 13-TIC-103 (for LIC1) or 13-TIC-781 (for LIC2).

V.B.3. WASTE FEED CUT-OFF REQUIREMENTS

V.B.3.a. The Permittee shall maintain and operate the systems specified in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables) to automatically cut off the hazardous waste feed to the LIC when the monitored operating conditions deviate from the set-points specified.

V.B.3.b. In the event of a malfunction of the LIC automatic waste feed cut-off systems listed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables) the Permittee shall immediately, manually, cut off the waste feed to the LIC and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunctions, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunctions, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

V.B.3.c. The Permittee shall perform a waste feed cut-off function test no less than once every 14 days. No waste shall be fed to the LIC during the function test. If the LIC is not operational (i.e., shut down), the Permittee shall perform the function test when the LIC becomes operational, prior to waste feed. Idling shall not be considered as "shut down." A copy of each function test shall be placed in the Operating Record.

V.C. METAL PARTS FURNACE (MPF)

All numeric values included in any of the Conditions under V.C., which are marked with an asterisk (*) (except numeric values for agent GB, which have previously been approved) are tentative and may be modified by permit modification after the results of each trial burn have been evaluated by the Executive Secretary in accordance with R315-8-15.5(c). The Executive Secretary reserves the right to replace the values which are marked with an asterisk as necessary to be protective of human health and the environment.

V.C.1. LIMITATION ON WASTE FEED

V.C.1.a. During processing, the MPF discharge airlock (DAL) shall be monitored for agents being processed in the MPF. During munitions processing, the MPF DAL shall monitor for agent either by high temperature or low temperature monitoring protocols according to V.C.2.r. and Attachment 22. For secondary wastes, the MPF DAL shall be monitored using low temperature monitoring according to V.B.4 and Attachment 22. Spray Tanks and mine drums must be processed using low temperature monitoring until a monitoring plan, specific to Spray Tanks and mine drums has been approved by the Executive Secretary. Except during the short-term periods specified in Module VI for shakedown, trial burn, and post-trial burn, the Permittee shall incinerate only the following hazardous wastes in the MPF, in compliance with the operating requirements specified in Condition V.C.2.

V.C.1.a.i. Chemical Agent Munitions

MUNITION (D004, D005, D006, D007, D008, D009)		**MODEL**	**MUNITIONS PER TRAY***	**INTERVAL BETWEEN TRAY FEED IN MINUTES*[1, 2,]**	**CHEMICAL AGENTS MAXIMUM (LBS/TRAY) (P999, D003, D004, D006, D007, D008, D009,D010)**		
					GB	VX	H,HD & HT
Bulk Containers	Ton Container		1.0	65.0	75	75*	90*
	Bomb, Weteye	MK116	1.0	30.0	17.4		
	Spray Tank	TMU-28	1.0	40.0		67.8*	
		TMU-28/B				67.8*	
Projectiles	Projectile, 105M Howitzer	M360	96	31.0	7.8		
	Projectile, 155M Howitzer	M104	48	31.0			28.1*
		M110					28.1*
		M121			15.6		
		M121A1			15.6	14.4*	
		M122			15.6		
	Mortar, 4.2 inch	M2	96	31.0			27.8*
		M2A1					28.8*
Test Materials Simulated munitions and bulk containers; Agent simulants			Feed rate not to exceed that corresponding to the munition the test materials are intended to simulate		N/A	N/A	N/A

1. 2. The MPF Discharge Airlock timer is set for a minimum of 42 minutes prior to release for ton containers. Projectile MPF DAL timer is set at a minimum of 31 minutes. Spray tanks and mine drums timer will be determined at a later date.
2. Minimum zone times for ton containers are Zone 1 (65 min.), Zone 2 (23 min.), and Zone 3 (64 min.). Minimum zone time for projectiles are Zone 1 (31 min), Zone 2 (31 min.), and Zone 3 (pass- through of approximately 1 min).

V.C.1.a.ii. Agent Contaminated Secondary Waste

V.C.1.a.ii.a. Agent Contaminated Secondary Waste may be treated in the MPF. The MPF DAL shall be monitored for all agents by the low temperature monitoring protocol. The maximum

charge weight of secondary waste for each category is specified Table V.C.1 below, based on a minimum 75-minute furnace charge interval:

Category Feed Rates
Table V.C.1

Secondary Waste Category	Waste Stream Subcategory/ Component		Maximum Tray Limit (per charge)	Pounds per 12 hours, on 12 hour rolling average basis
Net Weight of WIC/Container[3] Contents	Net Weight of WIC/Container[3] Contents		2410 pounds maximum	
Combustible Bulk Solid Waste	Ash Content		83* lbs.	719* lbs.
	Halogen Content		163*lbs.	1566* lbs.
	BTU Content		4.9* Million BTUs	
	Agent-Contaminated Spill Absorbents		45* lbs	
	Non-Embedded Metals[4] Group 1 (High-Volatile Metals)		Mercury (D009)	0.0317*
	Non-Embedded Metals[4] Group 2 Semi-volatile Metals		Lead (D008 Cadmium (D006) Antimony Thallium Tin Zinc	272*
	Non-Embedded Metals[4] Group 3 Low Volatile Metals		Arsenic (D004) Chromium (D007) Barium (D005) Boron Cobalt Copper Selenium (D010) Silver (D011) Beryllium Aluminum Manganese Nickel Vanadium	197*
Non-Combustible Bulk Solid Waste	Aluminum		1000* lbs.	
	Glass/Ceramics		2410* lbs.	
	Miscellaneous Metal		2410* lbs.	
	Carbon Filter Cartridges-Aluminum Housing only		25* each	
	Building Materials	Concrete	To Be Determined[2]*	
		Foam Core Panels	To Be Determined[2]*	
Sludge	ACS, AQS, SDS Agent-Contaminated Sludges and Aqueous Wastes		45* lbs.	
Table Notes				

Note 1:	Unless successive trays are tracked to ensure the 12-hour limit is not exceeded, each WIC shall not exceed any one of the indicated limits. The indicated limits may be exceeded on a WIC as long as the 12-hour are complied with by limiting feeds on subsequent trays. If each WIC is limited to the indicated limits, the 12-hour limit will not be exceeded.
Note 2:	Successful treatment of these materials must be approved by the Executive Secretary
Note 3:	Waste Incineration Containers (WICs) are defined as the assembly of metal components that is used to contain, feed, and convey individual charges of secondary wastes and their resulting treatment residues through the MPF (i.e., Cut-away Ton Containers (CTCs), burn trays, rectangular open topped baskets equipped with catch pan).
Note 4:	Non-embedded metals are metals that may vaporize or become entrained in the combustion gas air during thermal treatment.

V.C.1.a.iii. Secondary wastes may be treated in the MPF only if the following conditions are met:

V.C.1.a.iii.1 The waste is evaluated and assigned to one of the secondary waste categories listed in the first column of the table; net weight of container, combustible bulk solid waste, noncombustible bulk solid wastes or sludge. Wastes associated with Condition V.C.1.a.ii., may not be fed.

V.C.1.a.iii.2 The waste is arranged upon the burn tray in a configuration approved by the Executive Secretary in accordance with Condition VI.C.3.a.i.b.

V.C.1.a.iii.3 A description of the waste and the categorization basis are documented in the operating record verifying feed rates are not exceeded.

V.C.1.a.iii.4 The containment of the container (WIC, CTC or burn tray) may not be exceeded.

V.C.1.a.iv. Secondary wastes generated during different agent campaigns may be fed separately or on the same tray provided the following conditions are met:

V.C.1.a.iv.1 The MPF discharge airlock is equipped to monitor all agents contaminating the wastes fed to the MPF.

V.C.1.a.iv.2 The MPF exhaust duct is equipped to monitor the agents contaminating the wastes fed to the MPF.

V.C.1.a.iv.3 The Common Stack is equipped to monitor the agents contaminating the wastes fed to the MPF.

V.C.1.a.iv.4 An MPF Destruction and Removal Efficiency has been determined, or an alternate means has been approved by the Executive Secretary for the agent contaminating the secondary wastes to be treated in the MPF

V.C.1.a.v. All non-munition wastes that envelop an interior space (e.g. gauges, cans, escape air tanks, overpacks, glassware, etc.) must be opened or punctured before being placed in the MPF.

V.C.1.a.vi. The wastes identified in V.C.1.a.ii. shall not be inside the MPF at the same time the wastes identified in V.C.1.a.i. are inside the MPF.

V.C.1.a.vii Secondary Waste identified in Table 2-5 of Attachment 2, Waste Analysis Plan, may be processed during the Shakedown and post Trial burn periods for agent that has been successfully demonstrated per condition VI.C.3.a.i.c.1. at the specified feed rate without further function testing.

V.C.1.a.viii The Permittee shall maintain records that differentiate and document between the Shakedown hours attributed to the processing of waste to be demonstrated during the trial burn/demonstration test and hours attributed to the processing of secondary waste per Condition V.C.1.a.viii.

V.C.1.b. The Permittee shall not incinerate any chemical agent, or any waste containing the chemical agent, for which treatment has not been successfully demonstrated through a trial burn in accordance with Module VI or by other means approved by the Executive Secretary.

V.C.1.c. The Permittee shall not incinerate any hazardous waste in the MPF that contains organic hazardous constituents as described in R315-50-10, that are more difficult to destroy than the material demonstrated in the surrogate trial burn.

V.C.1.d. The feed rate of total halogens to the MPF shall not exceed 1566* total pounds per hour, over a twelve hour rolling average or 163* total pounds per each furnace charge.

V.C.1.e. The Permittee shall drain liquid from secondary waste. The separated liquid will be categorized and treated as an agent-contaminated sludge per Table V.C.1.

V.C.1.f. The Permittee shall conduct sufficient analysis of the waste treated in the MPF to verify that the waste feed is within the physical and chemical composition limits specified, in accordance with the waste requirements in Attachments 2 (Waste Analysis Plan) and 3 (Sampling, Analytical, and QA/QC Procedures).

V.C.1.g. Items with VX heels in excess of 5% by weight shall not be processed unless a procedure protective of human health and the environment has been incorporated into this Permit in accordance with procedures specified in R315-3-4.

V.C.1.h. The feed rate of ash to the MPF shall not exceed 796* total pounds over a twelve-hour rolling average or 83 total pounds per each furnace charge.

V.C.1.i. The non-embedded metals feed rates to the MPF shall not exceed the values specified in Table V.2 at the end of this Module.

V.C.2. OPERATING CONDITIONS

V.C.2.a. All operating conditions shall be monitored in accordance with the Monitoring Requirements in V.A.4. The Permittee shall monitor emissions of chemical agent from the MPF duct and the common stack as specified in Condition V.A.4.a. The waste feed(s) to the incinerator shall be automatically cut off if any of the monitored emission levels exceed the values specified in Table D-6-2 in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

V.C.2.b. Only one loaded tray containing the waste materials shall be fed into the MPF at any given time. The minimum time intervals between each tray feed are specified in Conditions V.C.1.a.i. and V.C.1.a.ii.

V.C.2.c. The hourly feed rate of the residual chemical agent contained in the MPF feed, which was calculated using a 5 % heel from the amount of agent in each tray of munitions, shall not exceed the limits specified in Condition V.C.1.a.i.

V.C.2.d. The number of munition units fed to the MPF per batch feed shall not exceed the limit specified in Condition V.C.1.a.i.

V.C.2.e. The temperature of all three zones of the primary chamber shall be maintained above 1200*° F and shall not exceed 1,700*° F.

V.C.2.f. The MPF afterburner temperature shall be maintained above 1800*° F over a one-hour rolling average and shall not exceed 2,175*° F.

V.C.2.g. Carbon monoxide concentration in the exhaust blower exit gas and corrected to 7 % oxygen in accordance with the formula specified in Condition V.A.2.e., shall be maintained below 100 ppm, dry volume, over a one-hour rolling average.

V.C.2.h. The MPF exhaust gas flow rate, or unit production rate (as measured by the V-Cone), shall not exceed 7,893* standard cubic feed per minute, over a one-hour rolling average.

V.C.2.i. Oxygen concentration in the exhaust blower exit gas shall be maintained above 3* % oxygen but shall not reach or exceed 15* % oxygen on a dry volume basis.

V.C.2.j. The Permittee shall control fugitive emissions from the combustion zone of the MPF by maintaining the pressure in the primary chamber below the pressure of the MPF furnace room.

V.C.2.k. Quench tower exhaust gas temperature shall not exceed 225*° F.

V.C.2.l. Exhaust gas pressure drop across the venturi scrubber shall be maintained above 20* inches of water column over a one-hour rolling average.

V.C.2.m. Scrubber liquid feed rate to the venturi scrubber shall be maintained at or above 50* gallons per minute, over a one-hour rolling average. and above a minimum pressure of 70* psig.

V.C.2.n. Clean liquor liquid feed rate to the scrubber tower shall be maintained above 400* gallons per minute over a one-hour rolling average.

V.C.2.o. Clean liquor liquid delivery pressure to the scrubber tower shall be maintained above 25* pounds per square inch gauge, over a one hour rolling average.

V.C.2.p. Quench Brine pH shall be maintained above a pH of 7.0*, over a one-hour rolling average.

V.C.2.q. Scrubber liquid effluent shall not reach or exceed 1.12* specific gravity units, over a twelve hour rolling average.

V.C.2.r. The MPF Discharge Airlock shall be cooled to less than 600° F and monitored via low-temperature monitoring in accordance with Attachment 22 if any of the following upset

alarms occur as specified in the table below for the contents in the furnace at the time of the upset:

Tag Number	Limit	Descriptions
14-TIT-152 or 14-TIT-391	≥ 1700°F	Furnace Temperature (Zone 1)
14-TIT-141 or 14-TIT-392	≥ 1800°F	Furnace Temperature (Zone 2)
14-TIT-153 or 14-TIT-393	≥ 1700°F	Furnace Temperature (Zone 3)
14-TIT-065 or 14-TIT-069	≤1800°F	MPF Afterburner Temperature Low-Low
14-TIT-065 or 14-TIT-069	> 2175° F	MPF Afterburner Temperature High-High
14-PDIT-786	≥ 1.2 in. w.c.	Afterburner Exhaust Gas Velocity Pressure High
14-AIT-384m	≥ 1000 ppm 1-minute average. Correct to 7%-O_2, dry volume	Blower Exhaust CO Concentration. Average of 4 consecutive data points excluding points of calibration. Approximately 1- minute average.
24-AIT-669m	≥ 1000 ppm 1 minute average. Correct to 7%-O_2, dry volume	Blower Exhaust CO Concentration. Average of 4 consecutive data points excluding points of calibration. 1- minute average.
14-AIT-082	≤ 3% O_2	Blower Exhaust O_2
14-AIT-082	≥ 15% O_2	Blower Exhaust O_2 60 second delay
24-AIT-670	≤ 3% O_2	Blower Exhaust O_2
24-AIT-670	≥ 15% O_2	Blower Exhaust O_2 60 second delay
PAS 703V	≥ 0.5 ASC for VX. Malfunctions not included.	PAS Blower Exhaust VX Agent Detected
PAS 706V	≥ 0.2 ASC. Malfunctions not included.	Common Stack Exhaust VX Agent Detected
14-TIT-010	≥ 2113°F	Primary Chamber Exhaust Temperature. Ton Containers
14-TIT-010	≥ 1727°F	Primary Chamber Exhaust Temperature. Projectile Trays
14-TIT-010	To Be Determined	Primary Chamber Exhaust Temperature. VX Hydrolysate 5-Gallon Containers

V.C.2.s. The following items shall be documented in the daily operating record:

V.C.2.s.i. The monitoring protocol, either high temperature or low temperature
V.C.2.s.ii. The time the tray entered the discharge airlock
V.C.2.s.iii. The time the switch is activated to monitor the DAL instead of filtered air
V.C.2.s.iv. The agent monitoring readings in the discharge airlock (GB and VX)

V.C.2.s.v. The time the sample line challenge started

V.C.2.s.vi. The time the tray exited the discharge airlock into the cool-down area

V.C.3. WASTE FEED CUT-OFF REQUIREMENTS

V.C.3.a. The Permittee shall construct and maintain the systems, specified in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables) to automatically cut off the hazardous waste feed to the MPF when the monitored operating conditions deviate from the set-point specified.

V.C.3.b. In the event of a malfunction of the MPF automatic waste feed cut-off systems listed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables) the Permittee shall immediately, manually, cut off the waste feed to the MPF and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunctions, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunctions, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

V.C.3.c. The Permittee shall perform a waste feed cut-off function test no less than once every 14 days. No waste shall be fed to the MPF during the function test. If the MPF is not operational (i.e., shut down), the Permittee shall perform the function test when the MPF becomes operational, prior to waste feed. Idling shall not be considered as "shut down." A copy of each function test shall be placed in the Operating Record.

V.D. DEACTIVATION FURNACE SYSTEM (DFS)

All numeric values included in any of the Conditions under V.D. which are marked with an asterisk (*) (except numeric values for agent GB, which have previously been approved) are tentative and may be modified after the results of each trial burn have been evaluated by the Executive Secretary, in accordance with R315-8-15.5(c). The Executive Secretary reserves the right to replace the values, which are marked with an asterisk as necessary to be protective of human health and the environment.

V.D.1. LIMITATION ON WASTE FEED

V.D.1.a. Except during the short-term periods specified in Module VI for shakedown, trial burn, and post-trial burn, the Permittee shall incinerate only the following hazardous wastes in the DFS, in compliance with the operating requirements specified in Condition V.D.2.

TYPE OF AGENT AND MUNITIONS (P999, D002, D003, D004, D005, D006, D007, D008, D009, D010)	MAXIMUM UNITS/HR	MAXIMUM FEED RATE				
		VX		GB	PROPELLANT, EXPLOSIVES, AND PYROTECHNICS	
		lb/hr	lb per feed	lb/hr	lb/hr	lb per feed
GB ROCKETS	33			17.0	743.4	
VX ROCKETS	38*	19.0*	10.0*		856.0*	19.3
155-mm M110 PROJ.	276*				113.2*	
VX MINE M23[1]	70*	36.8*	10.5*		62.3*	1.0
105-mm PROJ M360	287				328.7	
155-mm PROJ M104	276*				229.0*	
155-mm PROJ M121A1	120*				330.0*	2.75
155-mm PROJ M122	120				330.0	
4.2 in MORTAR M2	274*				38.4*	
4.2 in MORTAR M2A1	274*				38.4*	

1. The VX and explosives feed rates are based upon 70 mines being fed in an hour. Mine Component Containers (MCCs) do not contain agent and contain less explosives than mines. The VX and explosives feed rates presented are therefore conservative since MCCs will be fed along with the mines and will count as a unit when determining compliance with the maximum units/hr limit presented above.

V.D.1.a.i. Except as noted in Condition V.D.1.a.iii., only one munition type and one chemical agent, or waste containing one chemical agent, shall be fed to the DFS, at any given time.

V.D.1.a.ii. ECR maintenance residues shall be fed at a rate not to exceed the agent feed rate demonstrated during the DFS VX trial burn. When processing ECR sump sludge generated during rocket processing, the kiln speed shall not exceed one rpm for a minimum of 15 minutes after the feed of maintenance residues and the HDC shall be placed in slow speed for a minimum of one hour after feeding ECR maintenance residues. This weight is assumed to be agent.

V.D.1.a.iii. The Permittee may process M55 rockets and projectiles simultaneously in the DFS provided that the combined waste feed thermal feed rate does not exceed 6.92* million BTU/hour, the combined propellant, explosive, and pyrotechnic feed rate does not exceed 125.8* pounds per hour; and the individual munition feed rates do not exceed the limits specified in Condition V.D.1.a. Non-gelled rockets shall be punched and drained prior to processing in the DFS.

V.D.1.b. The Permittee shall not incinerate any chemical agent, or any waste containing the chemical agent, for which treatment has not been successfully demonstrated through a trial burn in accordance with Module VI or by other means approved by the Executive Secretary.

V.D.1.c. The Permittee shall not incinerate any hazardous waste in the DFS that contains organic hazardous constituents as described in R315-50-10, that are more difficult to destroy than the material demonstrated in the surrogate trial burn.

V.D.1.d. The feed rate of chlorine to the DFS shall not exceed 6.4* pounds per hour over twelve hour rolling average.

V.D.1.e. Reserved.

V.D.1.f. The Permittee shall conduct sufficient analysis of the waste treated in the DFS to verify that the waste feed is within the physical and chemical composition limits specified, in accordance with the waste analysis requirements in Attachments 2 (Waste Analysis Plan) and 3 (Sampling, Analytical, and QA/QC Procedures).

V.D.1.g. The non-embedded metals feed rates to the DFS shall not exceed the values specified in Table V.3 at the end of this Module.

V.D.2. OPERATING CONDITIONS

V.D.2.a. All operating conditions shall be monitored in accordance with the Monitoring Requirements in V.A.4. The Permittee shall monitor emissions for chemical agent from the DFS and the common stack, as specified in Condition V.A.4.a. The waste feed(s) to the incinerator shall be automatically cut off if any of the monitored emission levels exceed the values specified in Table D-7-2 in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

V.D.2.b. The hourly feed rate and maximum feed weight of the chemical agent contained in the DFS feed, demonstrated during the agent trial burn, shall not exceed the limits provided in Condition V.D.1.a.

V.D.2.c. The number of munition units fed to the DFS in one hour shall not exceed the limit specified in Condition V.D.1.a.

V.D.2.d. The temperature of the unquenched DFS rotary kiln exhaust gas shall be maintained above 950*° F, over a one-hour rolling averageV.D.2.e. The temperature of the quenched DFS rotary kiln exhaust gas shall not exceed 1,650*° F.

V.D.2.f. Reserved.

V.D.2.g. The temperature of the heated discharge conveyor shall be maintained above 1,000*° F.

V.D.2.h. The rate of movement of the heated discharge conveyor shall be controlled to provide a minimum solid retention time of 15* minutes inside the heated enclosure.

V.D.2.i. The rotational speed of the retort shall be maintained within the following parameters:

V.D.2.i.i. The speed shall not reach or exceed two* revolutions per minute (rpm);

V.D.2.i.ii. Except when in oscillation mode, the speed shall not reach or drop below 0.33 rpm;

V.D.2.i.iii. Hazardous waste shall not be fed while the retort is in oscillation mode unless as provided in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

V.D.2.j. The DFS afterburner temperature shall be maintained above 2050*° F, over a one-hour rolling average but shall not reach or exceed 2,350*° F.

V.D.2.k. Carbon monoxide concentration in the afterburner exhaust gas, corrected to 7% oxygen in accordance with the formula specified in Condition V.A.2.e., shall not reach or exceed 100 ppm dry volume over a one-hour rolling average.

V.D.2.l. The DFS exhaust gas flow rate, or unit production rate (as measured by the V-Cone), shall not exceed 13,210* standard cubic feet per minute, over a one-hour rolling average.V.D.2.m. Oxygen concentration in the exhaust blower exit gas shall be maintained above 3% but shall not reach or exceed 15% oxygen on a dry volume basis.

V.D.2.n. The Permittee shall control fugitive emissions from the combustion zone of the DFS by maintaining the pressure in the kiln below the pressure of the DFS furnace room.

V.D.2.o. Quench tower exhaust gas temperature shall not exceed 200*° F.

V.D.2.p. Exhaust gas pressure drop across the Venturi scrubber shall be maintained at or above 20* inches of water column, over a one-hour rolling average.

V.D.2.q. Quench brine feed rate to the venturi scrubber shall be above 300* gallons per minute, over a one-hour rolling average and above a minimum pressure of 75* psig.

V.D.2.r. Clean liquor feed rate to the scrubber tower shall be maintained above 750* gallons per minute, over a one-hour rolling average.

V.D.2.s. Clean liquor pressure to the scrubber tower shall be maintained above 30* pounds per square inch gauge, over a one-hour rolling average.

V.D.2.t. The pH of the quench brine shall be maintained above 7.0*over a one-hour rolling average.

V.D.2.u. Scrubber liquid effluent specific gravity shall not reach or exceed 1.10* specific gravity units, over a twelve-hour rolling average.

V.D.2.v. The DFS cyclone discharge shall be enclosed within a building, which shall be ventilated to the MDB ventilation system when the DFS is operational or when waste is present within the cyclone discharge building. The DFS cyclone discharge building shall be operated in accordance with the procedures specified in Attachment 8 (Preparedness and Prevention Plan).

V.D.2.w. The Permittee may demonstrate that the agent concentration of a sample of the residue generated from the operation of the DFS Cyclone is below 20 ppb for GB or VX, or below 200 ppb for H/HD/HT, through analytical testing according to the procedures in Attachment 2 (Waste Analysis Plan). If these analytical results indicate that the agent concentration of the cyclone residue is below these limits, then the residue may be transported off site to an appropriate hazardous waste management facility for treatment, disposal, or both. If such a demonstration is not made, then the DFS cyclone residue shall be placed into permitted storage.

V.D.3. WASTE FEED CUT-OFF REQUIREMENTS

V.D.3.a. The Permittee shall construct and maintain the systems specified in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables) to automatically cut off the hazardous

waste feed to the DFS when the monitored operating conditions deviate from the set point.

V.D.3.b. In case of a malfunction of the DFS automatic waste feed cut-off systems listed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables), the Permittee shall immediately manually cut off the waste feed to the DFS and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunctions, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunctions, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

V.D.3.c. The Permittee shall perform a waste feed cut-off function test no less than once every 14 days. No waste shall be fed to the DFS during the function test. If the DFS is not operational (i.e., shut down), the Permittee shall perform the function test when the DFS becomes operational, prior to waste feed. Idling shall not be considered as "shut down." A copy of each function test shall be placed in the Operating Record.

V.E. COMMON STACK FOR LICs, MPF, & DFS

V.E.1. The Permittee shall maintain ACAMS and DAAMS continuous exhaust gas monitoring systems for chemical agent emissions on the common stack.

V.E.2. The exhaust gas monitoring systems specified in Condition V.E.1., shall be calibrated, inspected and operated in accordance with the applicable elements of Conditions V.A.3., V.A.4., and Attachments 3 (Sampling, Analytical, and QA/QC Procedures); 6 (Instrument Calibration Plan and Incinerator Waste Feed Interlock Function Test); 20 (Continuous Emission Monitoring Plan); and 22 (Agent Monitoring Plan).

V.E.3. Reserved

V.E.4. Emissions from the common stack shall be monitored for chemical agent as specified in Condition V.E.2. The agent concentration shall not exceed the values specified in Condition V.A.4.g.

V.E.5. The waste feeds to all incinerators and furnaces shall be automatically cut off when the emission level in the common stack exceeds 0.2 SEL for any chemical agent.

V.E.6. ACAMS on the common stack shall be comprised of two primary monitors in staggered mode of sampling for continuous monitoring for each agent. A back-up monitor shall be stationed in the stack for contingency purposes, i.e., primary monitor malfunctions or calibration.

V.E.7. Waste feed to all incinerators and furnaces shall be cut off when the ACAMS are not staggered.

V.E.8. DAAMS Tubes on the common stack shall be analyzed at a frequency of one tube per four hours of sampling with a corresponding QP sample. A method of DAAMS tube tracking is discussed in Section 22.17.2.1 of Attachment 22 (Agent Monitoring Plan).

V.E.9. Data from all ACAMS shall be reported on PDARS.

V.E.10. Data from all DAAMS analyses shall be reported in the Operating Record.

V.E.11. Confirmed agent alarms shall be orally reported to the Executive Secretary within 24 hours of confirmation.

Table V.1
LIC Metals Feed Limits

Metals	**24 hour Total [1,2] (pounds)***
Barium (D005)	0.19
Selenium (D010)	0.32
Silver (D011)	0.028
Metal Volatility Group	12-Hour Rolling Average[3] (Total Pounds per12 hours)
High Volatile Metals (Mercury D009)	0.0126
Semi-Volatile Metals (Lead (D008) and Cadmium (D006))	10.14
Low-Volatile Metals (Arsenic (D004), Beryllium, Chromium (D007))	5.46

Notes:

1. 24-hour Total is measured from 0000 hours to 2400 hours each calendar day.
2. Based on LIC agent GB Trial Burn, mini-burn, or the Metals Demonstration Test.
3. Based on LIC VX ATB

Table V.2
MPF Non-embedded Metals Feed Limits

Metals	**24-hour Total [1,2] (pounds)***
Barium (D005)	240
Selenium (D010)	0.036
Silver (D011)	10
Metal Volatility Group	**12-Hour Rolling Average[3] (Total pounds per-12 hours)**
High Volatile Metals (Mercury D009)	0.0033
Semi-Volatile Metals (Lead (D008) and Cadmium (D006))	61.08
Low-Volatile Metals (Arsenic (D004), Beryllium, Chromium (D007))	7.62

Notes:

1. Non-embedded metals are metals that may vaporize or become entrained in the combustion gas air during thermal treatment.2. 24-hour Total is measured from 0000 hours to 2400 hours each calendar day.

1. Based on MPF VX ATB

Table V.2a
MPF Non-Embedded Metals Feed Rates For Secondary Waste

Metal Volatility Group	**Metals**		**Pounds per 12 hours, on 12 hour rolling average basis**
Group 1 (High-Volatile Metals)	Mercury (D009)		0.0317*
Group 2 (Semi-Volatile Metals)	Lead (D008)	Thallium	272*
	Cadmium (D006)	Tin	
	Antimony	Zinc	
Group 3 (Low-Volatile Metals)	Arsenic (D004)	Boron	197
	Chromium (D007)	Cobalt	
	Barium (D005)	Copper	
	Selenium (D010)	Manganese	
	Silver (D0011)	Nickel	
	Beryllium	Vanadium	
	Aluminum		

1. Values based on 75 minute Charge Interval.

Table V.3
DFS Non-embedded Metals Feed Limits

Metals	24-hour Total[1,2] (pounds)*
Barium (D005)	61
Selenium (D010)	0.00019
Silver (D011)	0.000062
Metal Volatility Group	12-Hour Rolling Average[3] (Total pounds per 12 hours)
High Volatile Metals (Mercury D009)	0.0094
Semi-Volatile Metals (Lead (D008) and Cadmium (D006))	174
Low-Volatile Metals (Arsenic (D004), Beryllium, Chromium (D007))	5.16

Notes:

1. Non-embedded metals are metals that may vaporize or become entrained in the combustion gas air during thermal treatment.
2. 24-hour Total is measured from 0000 hours to 2400 hours each calendar day.
3. Based on the DFS VX ATB.